

6CU6—12CU6—25CU6

BEAM PENTODE

FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6CU6 is a beam-power pentode designed primarily for use as horizontal-deflection amplifier in television receivers. The tube exhibits high perveance, high plate current at low plate and screen voltages, and a high ratio of plate to screen current.

Except for heater ratings, the 12CU6 and 25CU6 are identical to the 6CU6. In addition, the 12CU6 features a controlled heater warm-up characteristic which makes it especially suited for use in television receivers that employ 600-milliampere, series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential	6CU6	12CU6	25CU6	
Heater Voltage, AC or DC	6.3	12.6	25.0	Volts
Heater Current	1.2	0.6	0.3	Amperes
Heater Warm-up Time*	—	11	—	Seconds

Direct Interelectrode Capacitances†

Grid-Number 1 to Plate	0.6	μμf
Input	15	μμf
Output	7.0	μμf

MECHANICAL

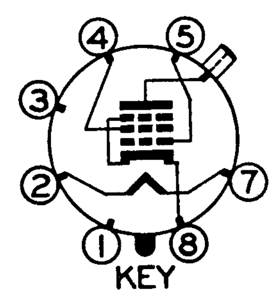
Mounting Position—Any
Envelope—T-11 or T-12, Glass
Base—B7-12, Medium-Shell Octal 7-Pin
or B7-111 or B7-119, Short Medium-Shell Octal 7-Pin
or B6-122, Short Medium-Shell Octal 6-Pin.
Top Cap—C1-3 or C1-33, Skirted Miniature

MAXIMUM RATINGS

HORIZONTAL-DEFLECTION AMPLIFIER SERVICE‡
DESIGN-CENTER VALUES UNLESS OTHERWISE INDICATED

DC Plate-Supply Voltage (Boost + DC Power Supply)	600	Volts
Peak Positive Pulse Plate Voltage	6000§	Volts
Peak Negative Pulse Plate Voltage	1250	Volts
Screen Voltage	200	Volts
Peak Negative Grid-Number 1 Voltage	300	Volts
Plate Dissipation△	11	Watts
Screen Dissipation	2.5	Watts
DC Cathode Current	110	Milliamperes
Peak Cathode Current	400	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance	0.47	Megohms
Bulb Temperature at Hottest Point	220	C

BASING DIAGRAM

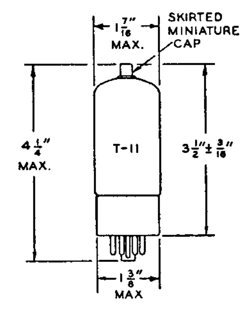


RETMA 6AM

TERMINAL CONNECTIONS

Pin 1—No Connection
Pin 2—Heater
Pin 3—No Connection
Pin 4—Grid Number 2 (Screen)
Pin 5—Grid Number 1
Pin 7—Heater
Pin 8—Cathode and Beam Plates
Cap —Plate
Pin 1 omitted on Base Number B6-122.

PHYSICAL DIMENSIONS



T-11 Version

T-12 version is identical except that the maximum bulb diameter is 1 9/16 inches.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage	60	250	Volts
Screen Voltage	150	150	Volts
Grid-Number 1 Voltage	0¶	−22.5	Volts
Plate Resistance, approximate	—	14500	Ohms
Transconductance	—	5900	Micromhos
Plate Current	260	57	Milliamperes
Screen Current	26	2.1	Milliamperes
Grid-Number 1 Voltage, approximate $I_b = 1.0$ Milliampere	—	−43	Volts
Triode Amplification Factor**	—	4.3	

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

† Without external shield.

‡ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

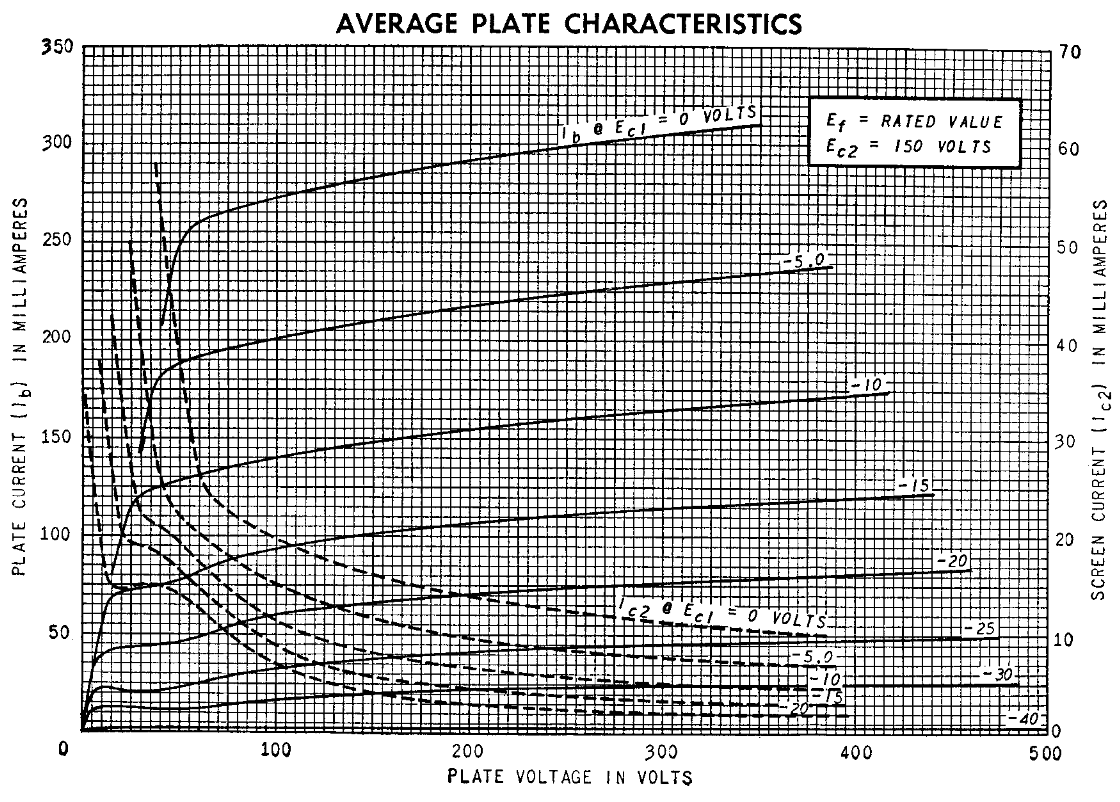
§ Value given is to be considered as an Absolute Maximum Rating. In this case, the combined effect of supply voltage variation, manufacturing variation including components in the equipment, and adjustment of equipment controls should not cause the rated value to be exceeded.

△In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in the absence of excitation.

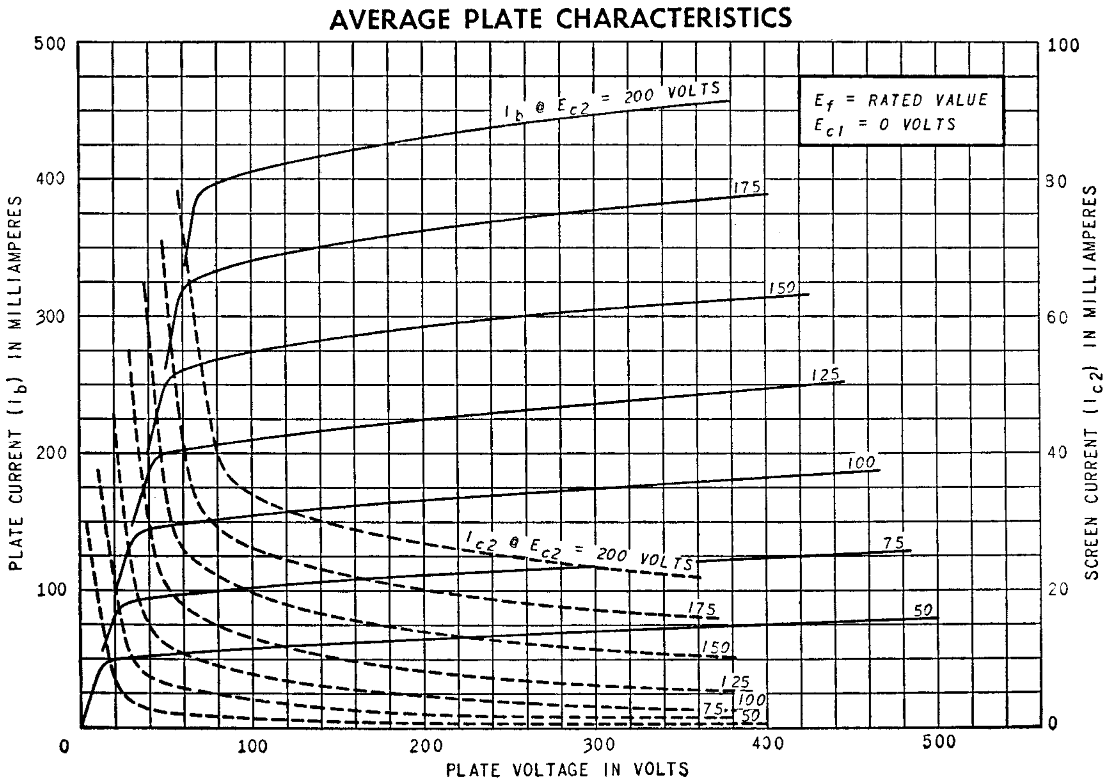
¶ Applied for short interval (two seconds maximum) so as not to damage tube.

**Triode connection (screen tied to plate) with $E_b = E_{c2} = 150$ volts and $E_{c1} = -22.5$ volts.

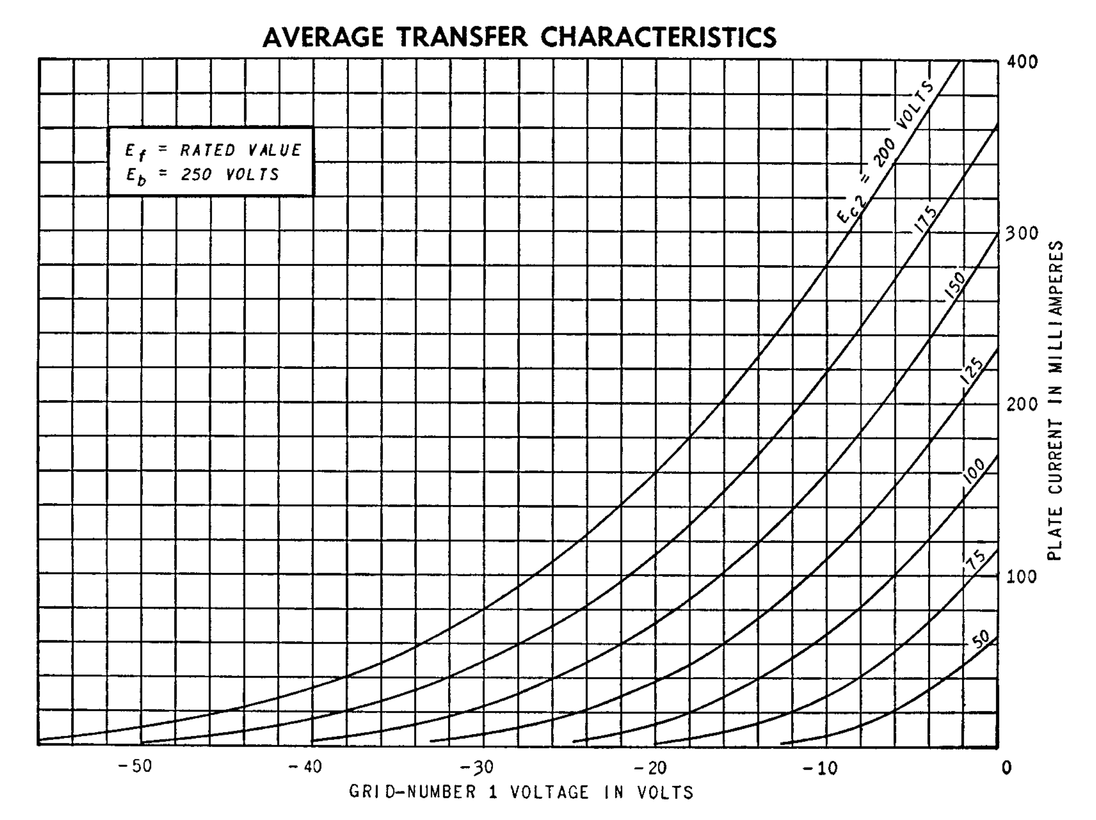
AVERAGE PLATE CHARACTERISTICS



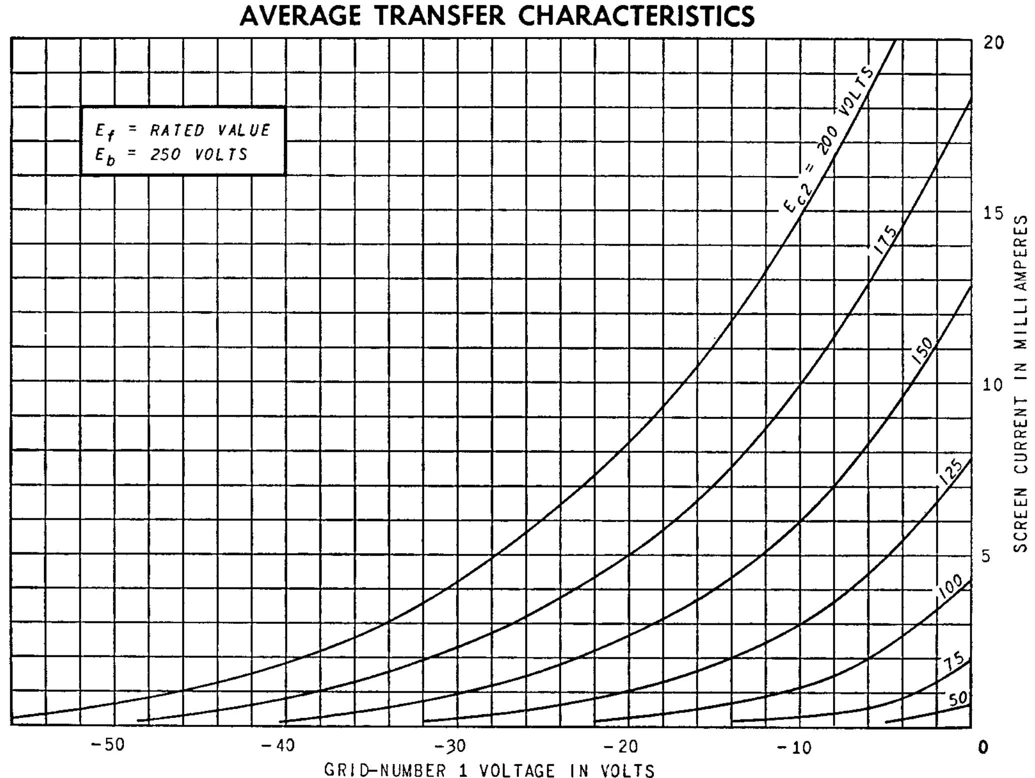
AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



ELECTRONIC COMPONENTS DIVISION



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